Modeling a 4G-LTE System in MATLAB Webinar Presentation Summary and Speaker Bio

In this on-line presentation, we discuss the iterative process of analysis, design, simulation, optimization, and implementation of major components of 4G LTE wireless systems in MATLAB. Orthogonal frequency-division multiplexing (OFDM) and multiple input, multiple output (MIMO) technologies are at the heart of modern communication systems. Because of the complexities of the underlying technologies, many companies are adopting MATLAB and Simulink to accelerate implementation and optimization of the next generation of wireless systems. Through demonstrations in MATLAB, we start with a simple communications system and progressively add components to approach a barebones prototype of a 4G LTE system.

Highlights of the presentation include:

Modeling, simulating, and visualizing the performance of the communications system in MATLAB

Using Communications System Toolbox to incorporate components such as modulators, channel models, convolutional and turbo coders, and MIMO and OFDM modules into your model

Performing system-level throughput analysis with adaptive modulation based on channel characteristics

Accelerating the speed of your MATLAB simulation at each step through parallel processing, code generation, efficient algorithms, and GPU processing

Generating C code from your MATLAB model with MATLAB Coder™ to prototype and test your model as a standalone desktop C/C++ application

Generating VHDL; or Verilog; code to implement the design using FPGAs

Speaker:

Dr. Houman is a senior product manager at MathWorks responsible for DSP System Toolbox, Communications System Toolbox, and the MATLAB to C workflow. He joined the company in 2001 as the development manager of the Signal Processing team. Prior to joining MathWorks, he spent six years at Nortel Networks as a member of the scientific staff specialized in wireless speech processing applications. He has a B.S.E.E. from McGill University and M.S.E.E. and Ph.D. from the Institut Nationale de la Recherche Scientifique, Universite du Quebec in Canada.